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ABSTRACT

This proceedings document provides one to two page versions of papers presented on the theme of celebrating diversity in developmental education, focusing on the areas of research, administration and learning assistance, writing, reading, and mathematics. Papers include, among others: "Gender Differences in Variables Related to Academic Achievement" (Pamela VanVoorhees Thomas and others); "Student Developmental Task and Lifestyle Inventory: Applications in Developmental Education" (Patricia L. Dwinell and Jeanne L. Higbee); "Use of the Science Inventory in Assessment: Teaching Science to the Underprepared College Student" (Mary H. Brown); "Not Playing by the Numbers: The Case for Case Study" (Janet Worthington); "Doing Ethnography: A Workshop for Qualitative Research" (Victoria Burkhart Faherty and others); "Using Reflective Teaching as Tutor Training Activities" (Rhonda Holt Atkinson); "Meeting Diversity's Challenge: The Comprehensive Academic Support Program" (Sylvia Gamboa and others); "Keeping a Journal: Self-Inquiry into Professional Growth" (Barbara G. Lyman and Emily Miller Payne); "The Senior Lecturer Program: Rewarding Part-Time/Adjunct Faculty" (Christine Hall and Carol Atnip); "What They Say and What They Do: Revision Strategies of Adult Developmental Writers" (Martha S. French); "Improving the Audience Awareness of Developmental Writers" (Patricia McAlexander); "Designing Portfolios for a Basic Writing Class" (Caroline Stern); "Cooperative Learning in the Developmental Studies Math Classroom" (Charlene B. Key); and "Assessment and Placement for Developmental Mathematics: A Collaborative Effort" (Ann S. Bretscher and Patricia L. Dwinell). (JDD)

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February 26 — March 1, 1992
San Antonio, Texas

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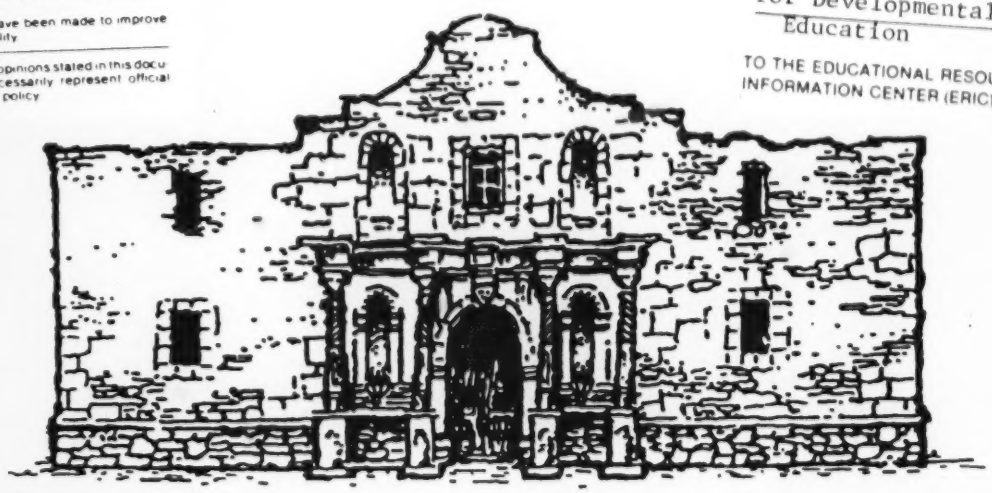

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Celebrating Diversity

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Proceedings of the 16th Annual Conference

of the

National Association for Developmental Education

San Antonio, Texas

February 26 — March 1, 1992

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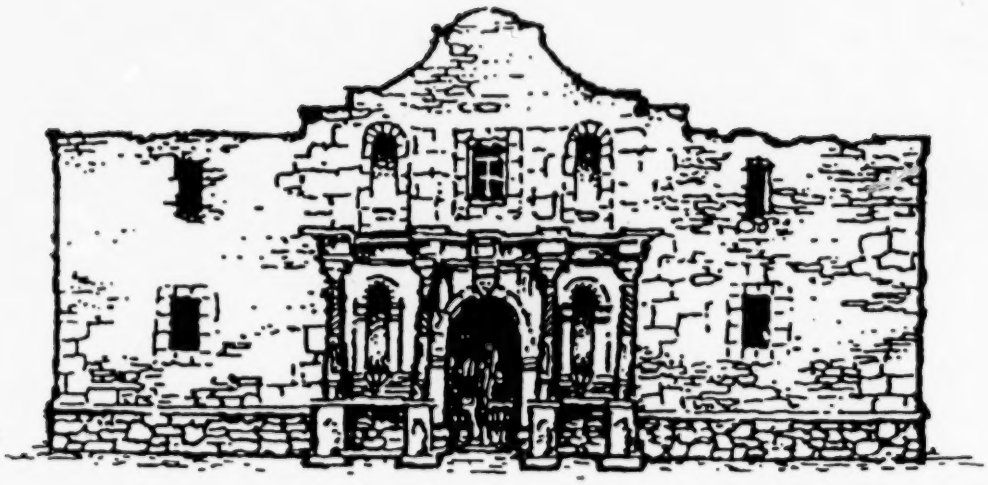

Research

Gender Differences in Variables Related to Academic Achievement

Pamela VanVoorhees Thomas
Jeanne L. Higbee
Patricia L. Dwinell
The University of Georgia

During the past two decades counselors and other educators increasingly have been sensitized to the relationship between affective variables and academic achievement. In regard to mathematics, Reyes (1984) provides the following definition of affective variables: "students' feelings about mathematics, aspects of the classroom, or about themselves as learners of mathematics" (p.558). Among the affective variables identified for study in relation to mathematics achievement are confidence in learning mathematics, attitude toward success in mathematics, mathematics anxiety, effectance motivation, and mathematics usefulness (Fennema & Sherman, 1976, 1978). Factors that may influence the attitudes of females toward learning mathematics include self-esteem, locus of control, sex role identity and the stereotype of math as a male domain (Biaggio & Pelofski, 1984; Fennema & Sherman, 1976, 1978).

The numerous inconsistencies in the findings pertaining to affective variables and mathematics achievement may be explained by close scrutiny of the populations measured. Several studies (Dwinell & Higbee, 1991a; Goolsby, Dwinell, Higbee, & Bretscher, 1988) have looked specifically at the relationship between mathematics anxiety and other affective variables and performance in a first quarter mathematics course for both male and female developmental studies students. Mathematics anxiety has been determined to be a significant predictor of achievement among developmental education students.

Sources of Stress

Numerous studies link stress to classroom performance. Among the factors students have the power to change in order to reduce stress are time management, nutritional habits and drug intake, exercise, relaxation, assertiveness, supportive relationships, and the nature of their self-statements regarding academic ability and achievement (Archer & Lamin, 1985; Higbee & Dwinell, 1992a).

Research conducted to examine the relationship between sources of stress and academic performance among developmental females and males considered time management; physical lifestyle choices including nutritional, exercise, and sleeping patterns; dependence on non-controlled chemical substances such as caffeine and alcohol; academic factors; interpersonal stress; test anxiety; and mathematics anxiety. These variables were selected because they are factors over which students can exert control. Significant differences were found between females and males on measures of stress related to time management, academic sources of stress, and test anxiety (Higbee & Dwinell, 1990).

Developmental Tasks

Freshmen are generally placed in developmental education programs because their high school grade point averages (HSGPA) and/or standardized test scores do not meet minimum requirements for regular admission to the institution. Academic achievement, as measured by HSGPA, is often inconsistent with the student potential indicated by aptitude test scores. Research (Dwinell & Higbee, 1991b, 1990; Higbee & Dwinell, 1992b) has examined the extent to which performance among students enrolled in a university Developmental Studies program is related to growth on a series of developmental tasks of traditional age college students (Chickering, 1969). Some of these high risk students may not be ready to achieve at a level commensurate with their potential. After participating in a required self-awareness course, females had significantly higher scores on the measure of academic autonomy than their male counterparts.

Self-Esteem and Fear of Success

In a study of fear of success using Matina Horner's (1972) scenario regarding Anne's success in her first term of medical school, no gender differences were found, and the vast majority of student essays expressed positive attitudes toward Anne's success. However, sex differences have been found among developmental freshmen on a measure of self-esteem (Higbee & Dwinell, 1992c). Although self-esteem has not been determined to be a significant predictor of academic performance among developmental education students, significant correlations have been found between self-esteem and other predictive affective variables, such as test anxiety and academic autonomy. Previous research related to self-esteem indicates that achievement itself is not the critical factor; rather it is the student's perception of performance that will impact retention. Students with low self-esteem underestimate their ability and achievement, while students with high self-esteem are more likely to overestimate their performance.

Conclusion

Strategies for reducing or eliminating sources of stress and academic anxiety can be very successful in minimizing the impact of affective barriers to success. However, low self-esteem is a more pervasive problem than subject-specific academic self-concept, and is likely to be considerably more difficult and time-consuming to eradicate. Gender differences in self-esteem, and their relationship to other noncognitive factors, merit further investigation. Copies of the paper presented at the conference, including tables, a more extensive literature review and reference list, are available from the authors.

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Student Developmental Task and Lifestyle Inventory (SDTLI): Applications in Developmental Education

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The Student Developmental Task and Lifestyle Inventory (SDTLI; Winston, Miller, & Prince, 1987) was designed to assess the growth of traditional age college students in the developmental tasks of early adulthood. The theoretical framework for the instrument is provided by Chickering (1969), who identified seven vectors of student development: "achieving competence, managing emotions, becoming autonomous, establishing identity, freeing interpersonal relationships, clarifying purposes, and developing integrity" (p. 19).

The instrument consists of three developmental tasks and two scales. The Establishing and Clarifying Purpose task (PUR) has five subtasks. Students who have accomplished the subtasks indicate the following (Miller & Winston, in press): (a) Educational Involvement (EI) - students have well defined educational goals and plans, knowledge about available resources, and are actively involved in learning; (b) Career Planning (CP) - students have synthesized knowledge about themselves and the world of work, have made a commitment to a chosen career, and have taken steps to prepare for employment; (c) Lifestyle Planning (LP) - students have established a personal direction in their lives that takes into account personal, ethical, and religious values, future family plans, and vocational and educational objectives; (d) Life Management (LM) - students have structured their lives and manipulated their environment in order to satisfy daily needs and meet responsibilities as independent, goal-directed, resourceful, and self sufficient individuals; and (e) Cultural Participation (CUP) - students have exhibited a wide array of cultural interests and are active in cultural events. The Developing Mature Interpersonal Relationships task (MIR) has three subtasks: (a) Peer Relationships (PR) - students have developed relationships with peers that are open and honest and reflect an appreciation of individual differences; (b) Tolerance (TOL) - students respect and accept individuals of different backgrounds, beliefs, cultures, races, lifestyles, and appearance; and (c) Emotional Autonomy (EA) - students trust their own ideas and feelings, have confidence in their abilities, and have minimal reliance on parents for direction.

High achievement on the Academic Autonomy task (AA) is characterized by students who have the capacity to deal with ambiguity, perform academically at levels with which they are satisfied, are self-disciplined, and require minimal amounts of direction from others. The Salubrious Lifestyle scale (SL) measures the degree to which a student has a lifestyle that is consistent with or promotes good health and wellness practices. Students scoring high on the Intimacy scale have a relationship with another person based on a high level of respect, honesty, and trust.

Research using the SDTLI and its predecessor, the Student Development Task Inventory (SDTI-2; Winston, Miller, & Prince, 1983), indicates differences between developmental education students and regular freshmen (Hinz, Benton, Pollard, & Jerrolds, 1983; Dwinell & Higbee, 1990a; Pollard, Benton, & Hinz, 1983). Research also indicates a relationship between student development and academic performance (Dwinell & Higbee, 1990b; Lang, 1984).

Pennscott, Ingle, and Atkinson (1986) found significant increases in scores on the Developing Purpose tasks of the SDTI-2 among Developmental Studies students targeted for related counseling interventions. Similarly, Higbee and Dwinell (in press) found significant increases among students enrolled in a Developmental Studies counseling course on all but one of the subtasks of the Establishing and Clarifying Purpose task of the SDTLI.

Thus, recent research supports the value of the SDTLI as an instructional tool for underprepared students. Counselors and academic advisors can use individual SDTLI scores to determine which students need to become more actively involved in the educational process or more autonomous in their decision making. Results can be used to target students for assistance in career and life planning or time or stress management. The importance of the relationship of these affective variables to performance among underprepared students cannot be ignored.

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Use of the Science Inventory In Assessment: Teaching Science to the Underprepared College Student

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In 1985, the Natural Science Program Committee of Lansing Community College constructed an assessment instrument known as the Science Inventory. The original intent was to identify enrolling students who might experience difficulty in a series of university level nonscience major transfer courses. Approximately 1,000 students enroll in three general education science courses (NS 121-Physical World, NS 122-Rocks & Stars, NS 123-Living World) per academic term. In 1985 the attrition rate (including students without a 2.0 transferable grade) was 33%. It was hoped early assessment could significantly reduce the attrition rate.

The Science Inventory is now in its' fifth year of use. The instrument consists of three parts. Part A and B were designed to evaluate anxiety of action and attitude. Statements are rated by students on a Likert-type scale. Early research with these sections indicated that between 15-20% (Brown & Cranson, 1989) of our student population may have science anxiety to the level that their performance in a science course is affected.

Part C contains twenty skill question items dealing with reading comprehension of three sample science paragraphs, graph interpretation, math skills and knowledge of geography. Science disciplines represented in the science skill questions corresponded with the disciplines represented within the nonscience sequence courses. The reading levels of the paragraphs were matched with the reading levels of the textbooks currently in use by the sequence courses. Math skills assessed were representative of math skills within the sequence. The earth science course relied upon some prior knowledge of geography for discussions on plate tectonics. A world map was included as part of the Science Inventory and students were asked to locate specific sites. Although ten locations were requested, the response was scored as correct if six of the items were correct. This was to prevent an overemphasis on the geographical component of the inventory.

There are now two versions of the Science Inventory, although revision is not entirely complete. In creating the two versions, validated questions from the original version were divided to allow some statistical comfort in advising students for placement. We are currently in the process of validating the two new forms and checking reliability between forms.

Thousands of students have been advised on the basis of their scores in the last five years. Students may be referred for enrollment in NS 100 (Science Discovery-A Process). NS 100 was specifically designed to address three major goals. One goal is the reduction of science anxiety so performance in subsequent science courses would be less adversely affected. Another goal is the development of appropriate study techniques and reasoning strategies for success within the sciences. The third major goal is preparation of students for enrollment within the Natural Science Program courses by providing them with the opportunity to sample various concepts in science disciplines.

NS 100 attempts to accomplish these goals through several "hands-on" science activities stressing active participation of students. Enrollment is kept at a maximum of twenty students per class to allow interaction. The course materials center around the scientific method and thus allow for discussion and practice of all science disciplines. The students are provided opportunities to become involved in scientific reasoning skills through an experiential mode.

Interwoven within the science are learning strategies that illustrate appropriate science study skills. For example, "Taylor's Shift in Attitude" (Woods, 1987) is discussed when students express frustration with the unit on metrics. A taxonomic key is used to encourage students to analyze their test taking strategies (Collins, 1979). A note taking evaluation is paired with a lecture on the scientific method and alternate methods of investigation. A library visit is used within a unit on science communication in preparation for writing a lab report.

Reasoning skills are also paired with science discipline materials. Classification skills are applied with mineral samples. Taxonomic keys are produced by students from illustrations taken from field guides of fish and frogs. Graph construction and interpretation use weather data collected locally.

At course completion, students design, implement and report in both oral and written formats a simple science experiment. Their growth within the eleven week term is reflected in their pride of accomplishment in their experiment. Publishing some of these experiments in a textbook form is currently under consideration.

There is consistent monitoring of NS 100 students throughout the Natural Science Program which is partially funded by a grant from the Council of North Central Community Junior Colleges.

Student surveys conducted over the last five years suggest that students appreciate and benefit from the NS 100 experience. In our summer survey of students in 1991, 97% stated that the course helped them to understand some basic science concepts and 70.6% rated the course as very effective. In addition, we no longer service exclusively Natural Science students. Our dental hygiene and dental assistant programs also use the

Science Inventory and advise students to take NS 100. We have begun research with our Chemistry Program students using the Science Inventory as an assessment.

In June 1990, we reviewed our attrition rate within the Natural Science Program after four years of implementation of the Science Inventory and NS 100. The 1985 attrition rate was 33% and is a sharp contrast with the 1990 attrition rate of 26%, without any significant decline in academic standards.

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Not Playing by the Numbers: The Case for Case Study

Janet Worthington
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Newspapers and magazines today often feature an individual or family as a way of presenting a current issue or problem because human beings understand problems and issues when they are presented as specific cases. Similarly, developmental educators now recognize that the study of cases can shed new light on current problems in education.

Educators and researchers are in agreement: the case study technique is becoming more important in explaining the complexity of educational processes. This method often permits greater depth of understanding and breadth of explanation than conventional empirical research can provide (Wilson and Gudmundsdottir, 1987, p. 42). Case studies may be used not only to verify existing theories, but also to build and elucidate new theories. In fact, as Susan Merriam (1985) points out, "All levels of education—preschool through adult—contain many questions that might best be dealt with by the case study approach" (p. 204).

Definition of the Case Study

But what exactly is the case study approach and how can it be so effective in providing some of the answers we need in education? The case study in education has been difficult to sort out from other emerging types of research. The concept of case study is an ambiguous one because it means different things to different writers. Some writers treat "educational ethnography, participant observation, qualitative observation, case study or field study as synonyms" (Crossley, 1984).

A working definition that distinguishes case study as a separate and unique research approach is essential. Yin (1989) defines the case study as an empirical inquiry that:

> "investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used" (p. 23).

In contrast to ethnographies which often require a great deal of field work, focus on detailed, observational evidence, and include no quantitative data, case studies may be completed without any field work or detailed, observational evidence, and may include quantitative data.

Further, the case study technique does not require that investigation be limited to one individual. Multiple cases are often warranted and used in developing a study, and a case study may focus on an organization, such as a school or on a process or incident.

Types of Case Studies

In her review of selected literature on case study research, Sharon Merriam (1985) explores several methods of classifying case studies. The first type is the descriptive or antheoretical. In these cases, the researcher is interested strictly in the case itself and does not attempt to build or apply theories to it.

The second type of case study is the exploratory case study. In the past, researchers viewed this approach as the principal one appropriate for research. The case study provided the beginning for the research and was scarcely mentioned in the final report. While exploratory case studies are still providing direction for later research of different types, clearly this is not the only type being used today. Also the exploratory case study should not be thought of as research without direction. If this type of case study has no clearly defined purpose and no means of measuring its successful completion, it is doomed to failure.

The final type of case study, the explanatory or analytical, examines the case for cause and effect relationships and provides explanations for phenomena. These types of case study may generate brand new hypotheses, or they may be used to confirm or expand existing theories. Those that explore cases that differ from a particular generalization are called deviant case analyses. All these variations on explanatory case studies have one thing in common: they have begun to enhance knowledge and understanding of educational processes in the past several decades (Merriam, 1985, p. 206).

Steps in Conducting a Case Study

The first step in conducting a case study is to design the study. This step requires identifying the problem and stating the questions that the study is designed to answer. The plan provides a means of getting the initial questions to the needed answers.

Yin (1989) explains that determining the type of study is dictated by the type of question formulated to address the problem. "Why" and "how" questions lead to case studies if the study focuses on contemporary events and if the researcher has little or no control over behavioral events.

Once the principal questions have been formulated, the researcher must explore and list other questions. These questions and propositions will point the way to the subjects to study and the types of data to collect.

The second step is selecting the sources of data for the case study. The types of evidence that may be used in a case study are collected from four sources: 1) observations (both direct and participant-observations), 2) interviews (open-ended or focused), 3) document analysis (both qualitative and quantitative), and 4) artifacts. Any combination of these types of evidence may be used, but no one is absolutely required.

One of the key issues in the third step—preparing to collect data—is to plan effectively what data will be collected and how it will be collected. One primary advantage of the case study is that pertinent data is not always easy to distinguish; therefore, the researcher must keep an open mind, ask questions, and listen very carefully to the answers given. Often one response will lead to other questions that need to be probed.

Coupled with an open attitude on the reader's part is a need for clear-cut guidelines and protocols for collecting case study data. Pilot interviews are often most helpful in developing the questions to ask. Included in developing the protocol are the training sessions for other interviewers, the plan for collecting data, the questions to be asked as well as the techniques for drawing out responses, and the tables for storing collected data.

The fourth step in conducting a case study is to actually collect the data. The information gathered should be of various types. Using several sources of information will add depth and breadth to the study and also will help to provide more convincing research documents.

Of all the types of evidence collected, notes will probably the most voluminous and most important in this type of study. Case study notes may be derived from a variety of sources of data, including observations, interviews, and even analyses of documents and artifacts. While the form of these notes (typed, taped, on computer disk, or handwritten) is not critical, "The only essential characteristics of the notes are that they be organized, categorized, complete, and thus available for later access" (Yin, 1989, p. 100).

*The techniques for the fifth step—analyzing the data—are many and varied. Miles and Huberman (1984) have listed a variety of such techniques including putting information into arrays or matrices, creating displays such as flow charts, counting the frequency of events, and putting information in chronological order.

The Benefits of Case Study Research

Case study research can provide holistic views of complex processes, institutions, and events. In the past, so much of educational research has focused on the numbers, because funding followed the numbers. It is now time to realize that numbers often hide as much as they reveal, and that if we are ever to make inroads into improving education, we must look at the whole picture.

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Doing Ethnography: A Workshop for Qualitative Research

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Learning assistance practitioners have often been "doing ethnography" for years, and have informally collected a mass of ethnographic data, acquiring a body of knowledge that is both real and unverified; the result, all too often, is that practitioners' knowledge base is dismissed as anecdotal, and simultaneously, does not lend itself to discrete analysis. Administration, evaluation, and program planning all are potentially enhanced by the systematic collection and analysis of ethnographic data.

An advantage of qualitative research based on interviews over traditional quantitative means, such as surveys, is the investigators' ultimate ability to generate a narrative encompassing common themes as well as including extraordinary experiences, allowing for the unexpected. Qualitative research emphasizes process; it is not static. Findings are not limited by reliance on frequency of response, nor by the investigators' previously set agenda.

Furthermore, one can learn to design a qualitative project without formal training in ethnography, through a program of self-study. A team approach is recommended, and begins with a period of reading and reporting on recommended sources as found in the bibliography. Researchers may draw on elements of several approaches.

Next, the team seeks to project goals and a timetable, taking into full and realistic account the limited amount of time any practitioner has to devote to such an undertaking. Regularly scheduled, if brief, meetings are important, with ongoing division of labor and minutes. Meetings are frequently characterized by brainstorming, designed to define what one wants to learn, from whom one wishes to learn it, and how one will elicit and report it.

Brainstorming, too, characterizes the generation of interview questions. At this stage, researchers can depend on experiential information gathered inductively within the realm of their practice. Goals and objectives shape the emerging questions, and revision yields their narrowing and sequencing, as well as monitors them for the maintenance of an appropriate level of open-endedness.

The mechanics of the interview, including avoiding investigator subjectivity, assuring consistency, managing transcription and recordings, and accounting for confidentiality are essential, and can be mastered by simulation and practice. Furthermore, formal goals and objectives are key, for analysis, interpretation, and reporting of data must be planned with direct reference to original goals and objectives.

If the research is to be conducted at any institution receiving federal monies, permission to use human subjects must be obtained from an institutional review board. The complex process of obtaining permission actually facilitates the development of the project.

As long as post-secondary education budgets are tight, learning assistance monies will be short, and administrators will require proof that need exists for specific services; moreover, the quality of existing services is of ongoing major concern to practitioners and administrators alike. With constraints of time and money, and with the ethical dilemma presented by collecting information on subjects experimentally, practitioners can find in qualitative research a method of evaluating and justifying their practice.

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Administration and Learning Assistance

Using Reflective Teaching as Tutor Training Activities

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Training plays a vital part in validating the role of tutors in the Learning Assistance Center's (LAC) chemistry, English, and math tutoring programs. As part of the requirements for the College Reading and Learning Association's Level I certification, tutors attend at least ten hours of training per year consisting of classroom or workshop instruction plus tutor training videotapes, conferences with a content-area supervisor, special tutor projects or other activities. Completion of the training program is required for re-employment and/or pay raises.

LAC tutor training is divided into two semesters with five hours of different content offered each semester. First semester content focuses on general information including departmental mission and goals, selection criteria for tutors, issues of ethics and confidentiality, tutor responsibilities, interpersonal skills, campus resources and referral mechanisms, stress management, and introduction to the evaluation instruments used to assess tutors and program success. The program utilizes a variety of delivery mechanisms. General sessions follow a basic workshop format which includes discussion and suggestions from returning tutors, selected segments from a commercially available videotape series on tutor training (UCLA Office of Instructional Development, 1987), role plays, and so on. These sessions are held early in the semester and are videotaped for use by tutors unable to attend scheduled sessions.

Second semester content builds on basic knowledge of tutoring strategies and emphasizes metacognition in terms of Bloom's (1956) taxonomy of levels of thinking and the ability to describe and model thinking processes. In order to gain additional information about general study strategies and/or content-specific learning strategies, tutors also attend any single (LAC) workshop. Approximately 45 of these workshops are offered throughout the semester and cover topics such as time management, concept mapping, note-taking, concentration and memory, how to study chemistry, word problems in algebra, and preparing for the English final. Thus, in second semester training, tutors focus on what they know, how they know it, and how they can clearly convey the ways in which they think about information to others. A reflective teaching lesson (Cruikshank, et al, 1981, Cruikshank, 1987) forms the culminating activity for demonstrating the ability to think through information and guide a learner through different levels of thinking. Videotaping the lessons enables tutors to synthesize tutor training concepts and provides a mechanism for tutors to analyze their own thinking as well as the ways in which other tutors think about information.

Reflection as a Tutor Training Activity

Reflective teaching activities encourage tutors to reframe (Schon, 1983) or rethink an event. Consider the following teaching assignment:

You will teach a 19 year old female student who sustained a head injury causing her to lose her ability to speak. She can produce sound, but has forgotten how to physically form the words. Outline a program to help her regain her speech. Identify the order in which you will present sounds to be learned and provide a rationale for your choices. Discuss the reinforcers you would use to encourage this student, the objectives you hope to achieve, and a timeline for completion of this task. Please note that although this student's native language is Chinese, she wants to regain her ability to speak English. Identify any problems that you foresee in making this adjustment.

Most tutors find themselves a bit taken aback by this assignment. Why? Certainly, they know how to speak and a common assumption is that you can teach anything you know; however, speaking—an automatic process— requires reframing or rethinking the process in order to describe it. Speaking and teaching someone how to speak, then, require different perspectives of the same process—or in Schon's terms, reframing. Similarly, knowledge must often be reframed—especially by those tutors who expert in their subjects—in order for direct instruction at the various levels of thinking to take place. Reflection becomes a means of turning such experience into learning. Reflection forms the learner's response to experience—a debriefing process which allows rethinking and evaluation. . . to examine what happened, how you felt about it, and discover what it meant (Pearson & Smith, 1985). While this process can occur inadvertently, conscious intent results in purposeful decision making, and ultimately, change. (Boud, Keogh & Walker, 1985). The use of reflective teaching lessons provides the conscious intent.

Reflective Teaching Lessons

The reflective teaching activities used in training sessions come from a set of materials published by Phi Delta Kappa (Cruikshank, Holton, Fay, Williams 1981). The materials are designed to meet five criteria: (1) to be somewhat interesting to teach and learn; (2) to contain unique content; (3) to be teachable in 15 minutes or less, (4) to result in observable, measurable outcomes; and (5) to be self-contained (Cruikshank, 1987). Most lessons are content-free which enables the focus to be on ways in which information is imparted rather than the content. Lessons are classified according to learning domain (cognitive, psychomotor, or affective) and teaching behavior (demonstration, description, designation, explanation, fostering attitude change, stimulation, or practice in problem-solving). Tutors select and prepare a lesson, then schedule a time to be videotaped. Each lesson provides a description of the task, an introduction to the teaching behavior and learning domain, an objec-

tive, ancillary materials if needed, special conditions, and usually an assessment instrument for student learning. After all tutors complete their lessons, small groups meet to view the tapes. They respond to the following questions for each lesson: What one word would you use to describe this session? What did you learn about the way this person thinks? How else could the information be organized and presented? Once all of the lessons from the members of the group are viewed, each tutor responds to the following: Think back about the lessons you viewed. Complete the following statements about yourself: Today I learned...I noticed that I...I was surprised that...

Results and Conclusions

Reflective teaching lessons provide tutors with windows into the ways in which they think. They allow them to think through and rethink events. Tutors describe the lessons they watch in a variety of ways including: easy to follow, slightly unpracticed, distracting, boring, detailed. Some of the things they learn from the ways in which others think include: organized thinker, clear, visual thinker, logical, creative, used metaphors and examples. In identifying other ways in which information could be organized and presented, they suggested: asking learners to develop their own symbols, as a lecture, ask more questions, present a synthesis rather than an analysis of ideas. Videotaping made many tutors nervous; few tutors wanted to be "stars." Still, in describing how the experience impacted them as tutors, their responses included the following: "The thought process is just as important as the solution." "Different methods can be used to convey the same idea." "Critical thinking can help my students improve." "I need to work on explaining my own thought processes to others." These comments indicate that the goal of the reflective teaching lessons—consideration of thought processes both in the tutors and in the students they serve—is being accomplished.

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Meeting Diversity's Challenge: The Comprehensive Academic Support Program

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A consistent vision of academic enhancement for all students has enabled the College Skills Lab to meet the challenges of increasing student numbers and diversity. Through creative planning, expanded services, and innovative programs, the Lab has become a comprehensive academic support program serving students from orientation through graduation.

History and mission

Originally a part of the Counseling Center under Student Affairs, the College Skills Lab (CSL) became an independent operation in 1981, moved under the Undergraduate Dean in Academic Affairs in 1984, and became a part of the Division of Enrollment Management in 1987. An important factor in the CSL's growth from a small service to a large academic support program has been the consistent focus on meeting the academic needs of all students. Although the Lab strongly supports developmental courses in English, mathematics, and learning strategies, it has not been limited to a developmental role. This flexibility in mission has enabled the CSL to respond to the diverse needs of the students, many of whom utilize CSL services to maintain good grades as well as to improve academic performance.

Organization

The College Skills Lab houses all component labs except the Biology Lab, located in the Science Center. This centrality increases the visibility and convenience of the services available to students. However, the various academic departments are actively involved in the Accounting, Languages, Math, Philosophy, and Writing Labs, providing a faculty member as director, recommending peer tutors, and helping determine the scope of the labs' assistance. This involvement gives the academic community a sense of ownership in the CSL. Not tied to a discipline, the Study Skills/Reading Lab is staffed by professionals who work closely with students, faculty, and administration to help students improve their learning skills. The director of the CSL coordinates the activities of all the component labs aided by an assistant director, component lab directors, two administrative assistants, and work study students. Approximately 80 peer tutors are employed by the CSL.

Services and programs

The College Skills Lab serves the student through walk-in labs in high demand areas, individual assistance in study skills, and tutoring in any subjects not covered by a lab. Increasing numbers of students of all levels and abilities seek assistance in study techniques and content areas as they encounter new learning situations. Responding to these needs, the CSL provides innovative programs that reach out to the students, such as Supplemental Instruction; training student group leaders as academic mentors; content-specific class presentations; and focused assistance to academic at-risk, international, learning disabled, minority, and non-traditional students. The CSL staff participate in placement testing, advising, and probation workshops; teach learning strategies and freshmen seminar courses; and are involved in faculty programs such as Writing Across the Curriculum. Such a comprehensive range of services and programs would not be possible without strong support from administration and faculty.

A faculty perspective

Faculty will support a skills lab if they understand it. In his article "The Idea of a Writing Center," North (1984) discusses his frustrations with the "ignorance" of his colleagues because they do not "understand what does happen, what can happen, in a writing center" (p. 435). Although North writes about writing centers, his concerns apply to all skills labs. It is exactly this ignorance that the College Skills Lab has worked to dispel. A closer look at the Writing Lab should illustrate how some of the ignorance is dispelled and how the close connections with the faculty are achieved.

The Writing Lab

The Writing Lab is staffed by a director and four full-time faculty from the English Department who send their own students to the lab and encourage colleagues to refer theirs. Six to eight students serve as peer tutors. During the spring, the Writing Lab director solicits names of students who might be prospective peer tutors from all English faculty. When the names are collected, the director evaluates the students and returns the names to the English faculty for comment. A student who receives a negative comment is not hired. At the beginning of the fall semester, the Writing Lab director introduces the new tutors to the English faculty. Thus, while the lab is under the umbrella of the CSL, the English faculty play an important role in its makeup.

Another way the Writing Lab establishes a strong connection with the faculty is through a progress report, a simple form describing work the student has done in the lab. One copy stays in the student's file and the other goes to the professor. At the end of the semester, a report listing student names and number of visits to the lab is sent to each faculty member whose students have worked in the lab.

Although some faculty members at all institutions feel a reservation about the collaborative learning that goes on in a lab, the CSL believes that "it is the heart of learning. Such collaborative learning is essential to a university and has a long and honorable history" (Behm, 1989, p. 40). The progress reports help allay some fears

about the ethics of collaborative learning and promote confidence in the College Skills Lab's work.

The Writing Lab has established other links to the faculty. Faculty are invited to be guest speakers at weekly tutor training sessions. For example, a professor from the Education Department described how to tutor learning disabled students, and later members of the LD support group talked about how they compensate for their disabilities. Professors in various disciplines also provide sample papers for tutors to use as examples of good writing, and English faculty members working in the Writing Lab go to classrooms to discuss research papers.

Recently, the individual labs of the College Skills Lab have sought tutor certification from the College Reading and Learning Association, a national professional organization which offers certification for tutor training. The Writing Lab has just received this certification, and the other labs are working toward this goal.

Although each lab operates differently, the efforts of the Writing Lab suggest how close cooperation among faculty, staff, and students can be achieved.

Conclusion

As the college enrollment increases, student use of the CSL grows also. During the 1990-91 school year, the CSL served 4,120 individual students for 21,549 contacts, over half of the undergraduate enrollment of 6700 students. We are proud of being a part of the college retention program which won a national award and of the college's being chosen a Model College by the Johnson Foundation. However, our true reward comes from the realization of the original vision that we can enable all students to grow and develop academically. We agree with Jim Melko (1991), editor of *The Liaison*, that "developmental refers to an *approach*, extended through learning assistance beyond developmental education courses, that can be used not only to address the needs for remediation, but to serve all of our other population as well as to ensure that every student at any level has the maximum opportunity to succeed" (p. 6).

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Keys, Access, and TLC: Diversity in Academic Support Programs

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Muskingum Area Technical College

Muskingum Area Technical College uses an integrated approach to developmental education: Keys, Access, and Tech Learning Center (TLC). These approaches incorporate most of Roueche's (1984) "elements of success" that characterize good developmental efforts. A brief overview of the college and its students will explain the context of these developmental programs.

Offering 25 degree programs and employing 107 full-time individuals, Muskingum Tech is located in southeastern Ohio. Only 46% of the six county service area's adults have completed high school (the national average is 66.5%), and a mere 7.53% have four or more years of college. Twenty-one percent of the area's population lives in poverty, and unemployment stands at 8.3%. Over 75% of the college's students are first-generation college attenders, 65% are female, and 30 is the average age. Since 1987, enrollment has increased 34.2%, currently standing at 2400.

The philosophy behind Muskingum Tech's integrated approach is that underprepared and disadvantaged students need more than academic development to become successful college students. Recognizing adult students' needs, the college created the Access program in 1985 with Carl Perkins grants. The Tech Learning Center began in 1988 with the receipt of a $500,000 federal Title III grant. In 1990, due to the implementation of the Ohio Human Services JOBS program, the college developed the Keys Program with a grant from that agency. Assessment testing indicates that 78% of entering students require services from at least one of these programs.

Noel, Levitz and Kaufman (1982) state that developmental or remedial services alone are insufficient to ensure student success. Therefore, in addition to offering a curriculum of seven basic skills courses, the Tech Learning Center includes a significant academic advising component. Professional and peer tutoring programs and a lab for computer-assisted instruction help students reinforce and practice skills presented in the classroom. All of these services along with the assessment testing program for new students are coordinated in one location—Tech Learning Center—improving communication, cooperation, and program quality. The goal of the program is to enable students initially identified as underprepared to progress to college level classes with the personal development and academic skills needed to accomplish their educational goals.

The Access Program minimizes institutional barriers for adult students, many of whom are referred to Muskingum Tech via federal job training programs, rehabilitation services, workers' compensation, or human services agencies. To provide flexibility in scheduling, Access enrolls students any time during the quarter and allows them to set their own weekly course schedules. To encourage a sense of control, Access lets students work at their own pace in a lab setting with individualized instructor assistance as needed. To alleviate financial hardship, Access waives fees for those students ineligible for financial aid. To assist students with nonacademic problems, Access utilizes the services of an intervention aide. The goal of the Access Program is to give returning adult students flexibility as they add "student" to their other life roles.

The Keys Program serves human services clients who lack the survival skills and social preparation necessary for academic success by providing a bridge to the college's culture. Also a non-quarter based program, Keys uses a workshop and collaborative learning approach. Topics addressed include: expectations of family and friends, stress reduction strategies, time management, budgeting, goal setting, problem solving, decision making, appropriate behavior with instructors, and developing a work ethic. Keys also includes individualized occupational assessment and intervention services which provide referrals to community agencies for child care or counseling needs. The goal of the Keys program is provide effective coping and networking strategies to encourage persistence.

The primary differences in these programs are the delivery systems and domain emphasis. The Tech Learning Center offers quarter-based classroom instruction, Access offers nonquarter-based individualized self-paced learning, and Keys utilizes an open-entry workshop format. The TLC and Access Programs focus on cognitive and academic processes, while Keys develops affective skills. Students may participate concurrently or sequentially in any of the programs as appropriate. Muskingum Tech is committed to addressing the needs of the whole person by implementing this integrated approach to developmental education.

Indicators of the programs' success include these facts: 85% of the students recognized at the annual academic honors program started with developmental education, 31% of 1992 graduates began their college careers in developmental education, and 80 to 100% of students surveyed over a three year period were highly satisfied with their developmental classes. These programs, Access, Keys, and TLC, have empowered underprepared and disadvantaged students.

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Computer-Controlled Interactive Video: Applications and Design

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"New knowledge delivery systems are going to have a renaissance effect on humanity...a lot quicker than most people think...we may possibly see dramatic changes in education in this decade. We are on the edge of an educational revolution—a fundamental change in the human interface to knowledge" (James Dezell of IBM Corporation). Until recently humans and books were the primary interfaces to knowledge, but now, more and more new technological interfaces to knowledge are becoming available. We will share with you information about some of these new technologies—these new interfaces to knowledge, and we will share with you information about the past, present, and future of interactive multimedia.

Since 1983, Troy State University at Troy, Alabama, has been working in interactive multimedia training and production. Faculty of TSU have created over 40 interactive video learning programs on topics ranging from music to mathematics. These interactive programs have utilized both interactive video tape and videodisc media. Our interactive videodisc, student information system has been in operation since 1987. This interactive information system was designed to get students involved in the campus community as quickly as possible by providing information about all phases of our University from student activities to academics. The videodisc for this system was designed using the peanut butter theory—we designed it to be thick, chunky, and easily spread, and the video tells a story, evokes an emotion, or does both—tells a story and evokes an emotion. Six videodiscs have been produced at TSU and others are planned. The Physical Science Department has developed five of these videodiscs, and they are experimenting with using bar codes and light pens as a means of accessing videodisc scenes for classroom presentations.

We have trained representatives of business, industry, the military and education in production of interactive video and utilization of interactive multimedia. We assisted the University of South Alabama in creating their first videodisc for training family practice medical students, and we have presented numerous programs at state, regional, and national meetings regarding interactive video. We consult with others outside the University through our Interactive Media Center.

There are three levels of interactive video: Level I can be played from beginning to end in a linear fashion without computer control (our student information videodisc the University of Winners can be played as a Level I interactive video); Level II interactive video is played on a system which has an onboard microprocessor and the videodisc has the control program as a digital dump on the disc itself—the level II interactive video is generally played on proprietary systems (The Compact Disc Interactive, CD-I, system is a Level II system); Level III interactive video has an external computer controlling the video (Our Student Information System is a Level III interactive video application).

Applications of interactive video were shared to show you where we've been and where we are in interactive multimedia. Interactive video applications shared included: "Safety in the Science Laboratory," "Speech Articulation," "You be the Reporter-Journalism," "Real World Physics," "Science Lab Manuals on Videodisc," "Counseling Simulations," "TSU Interactive Videodisc Student Information" (The University of Winners videodisc), and "Tutor Training in the Writing Center."

We at Troy State University have produced numerous interactive video programs to meet students' needs (particularly developmental needs), and we have trained others in production of interactive programs and lessons. As a result of our experience we have developed certain beliefs:

1. We believe that interactive video/multimedia can bring reality and experiences into the classroom in a manner that has not been possible before.
2. We believe that computers and interactive multimedia will allow us to tailor learning to fit students.
3. We believe multimedia will be seen in more and more classrooms and used in many different ways—from teaching problem solving to exploring foreign lands.
4. We believe that it is no longer possible to impart an entire body of knowledge in a particular discipline; instead, students must be able to access information: analyze, sort, and organize information; use information appropriately; and create new information through proper research techniques and utilization of technology.
5. We believe that students should be technologically literate, that is, they should be able to understand and utilize computers, local and wide area networks, interactive multimedia, distance learning via satellite and microwave, satellite telecommunications, digital video, DVI, CDI, FAX technology, virtual reality, and other technologies as they develop.
6. We believe that students, in order to survive in this technologically intensive society, will need abilities to think creatively and critically, to compute, to communicate effectively, to make sound judgements and decisions, to interact well with others, to enjoy and appreciate art, and to write in their disciplines.
7. We believe that education will need to rethink its curriculum, methods, goals and objectives in terms of technology's impact on society and students' needs in our information intensive society.

8. We believe that through technology coupled with the appropriate curriculum and methods of instruction (probably an interdisciplinary approach), students will meet the requirements of the workplace as described by Parnell's Dateline 2000: The New Higher Education Agenda. That is students will be: able to work in teams, able to handle projects from start to finish, Multi-talented and well-educated, highly skilled and highly adaptive, able to understand technology (its applications & possibilities), lifelong learners, application as well as knowledge literate, and creative.

9. We believe that a curriculum of interdisciplinary learning enhanced by multimedia technology will provide the solution which Alfred North Whitehead (1952) urged in his book *The Aims of Education*: "The solution which I am urging is to eradicate the fatal disconnection of subjects which kills the vitality of our modern curriculum ...There is only one subject-matter for education, and that is life in all its manifestations. Instead of this single unit we offer children—Algebra, from which nothing follows; Geometry, from which nothing follows; History, from which nothing follows; a couple of languages never mastered....It is a rapid table of contents which a deity might run over in his mind while he was thinking of creating a world, and has not yet determined how to put it together." We believe that multimedia-interdisciplinary learning will provide students with the "table of contents" of life and the knowledge of how to put it all together.

The past and present in our interactive multimedia work and beliefs were presented, and then we looked into the future of interactive multimedia. In the digital interactive world of the future, we believe that libraries will become the online access, receptacle, and distribution centers for information in text, video, sounds, and combination formats. In the future, through fiber optic networking, schools will be able to utilize interactive multimedia learning programs which will include video, audio, graphics, and text; and with the recent changes in regulations for telephone companies regarding transmission of video, the telephone companies' fiber optic lines may transmit these multimedia programs. Compact Disc-Interactive (CD-I), within a few years, will penetrate the home market by piggybacking on the success of Compact Disc-Audio (CD-A), and this will provide a tool for expanding in-home, educational opportunities.

Of even more interest to education is a new movement toward 3-dimension interactive video called virtual reality. Virtual reality is being researched and developed by several research facilities around the world including the Human Interface Technology Laboratory (HITL) at the University of Washington, Seattle, Washington. Virtual reality when fully developed will allow students to interact with a three-dimensional interactive video environment. Apple Computer's Virtual Museum is a two-dimensional step toward the realities of three-dimensional interactivity. In the prototype of three-dimensional virtual reality, a student uses a head gear and a gloved hand to interact with a three-dimensional "reality" which is generated by a computer. Future classrooms may have virtual reality centers just as we have learning centers today, and these virtual reality centers will allow students to experience and interact with a rain forest, a Mayan pyramid, a place, an event, or other learning environments; and as the student interacts with the 3-D environment, the environment will react accordingly.

The day will come when we will be able to tailor-make educational programs for students. As Dezell says each person will discover knowledge in the pattern that fits his (her) paradigm for learning. We are at an exciting point in time in which students not only get information from teachers, they can get information through technology and they can be actively involved in an interactive process of information transfer through technology. We must view technology—particularly multimedia technology—as an opportunity for improving education, as a possible solution to some of our educational problems, and as a permanent yet constantly changing addition to instruction—an addition which can tremendously improve education of students by bringing reality and experience into the classroom and by offering new methods of instruction which will aid in development of the abilities so desperately needed by our students who must live and work in our technology-intensive world of the future.

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Keeping a Journal: Self-Inquiry into Professional Growth

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The power of personal journals to form a bridge between personal inquiry and professional development is nowhere better seen than in numerous case studies of emergent literacy in which parents detailed their preschool children's evolving interactions with written language (Teale & Sulzby, 1986). Glenda Bissex's (1980) *Gyns at Work* is a classic example. These case studies, begun as parental observations written down, collectively formed a base of descriptive studies which fueled a flurry of 1980's research in emergent literacy. Thus personal journals can serve as the impetus for professional development and they have the potential to do for developmental education what they did for interest and research in emergent literacy.

Rationales for Journal Keeping

That it serves as an instrument of self-examination and reflection is possibly the best reason for keeping a journal. However, journal keeping has many specific advantages, all of which promote personal or professional development or both.

Some of the main reasons for keeping a journal are quite practical. First, even our most powerful experiences, if we do not write them down, are eventually "softened to an indistinct haze" (Stillman, 1989, p. 20). Keeping a journal, whether as a chronicle of life experience or professional practice, wards off forgetting. Second, journal keeping results in a tangible product, testifying to what we do with our time (Holly, 1989).

Journal writing serves as an antidote to burnout. Writing entries forces us to take time out from the daily, sometimes overwhelming rush of activity and creates opportunities to stop and think (Holly, 1989). Because keeping a journal also helps us to sort through the multiple demands of our professional and personal lives, it can keep us more focused on priorities (Holly, 1989). Many journal writers report that they are most likely to keep a journal during major transitions, attesting to the value of this activity in combatting stress.

Practical reasons for keeping a journal extend to the craft of writing. To write adequately requires almost daily writing efforts (Stillman, 1989). In addition, journal entries provide drafts which can later be extended into various forms of personal and professional writing from letters to memos to grants (Holly, 1989).

Keeping a journal also promotes creative aspects of writing. When we write we often juxtapose ideas which normally would not have been considered together (Hayes, 1989). In keeping a journal, we make connections which otherwise would not occur. Writing is also a way of discovering new knowledge. By looking back at journal entries, we can identify the topics and concerns which preoccupy us (Holly, 1989).

Finally, keeping a journal provides a record, freezing the action. This can be the basis for analysis, planning, and evaluation (Holly, 1989), thus taking developmental educators one step closer to reflective practice (Schon, 1983).

Types of Journals

Generally, journals can be categorized as professional, pragmatic, and introspective. Each category further divides by specific purpose of the journal and/or by medium in or on which the journal is recorded.

Professional journals can be as formal or as informal as the writer chooses. The writer may elect to devote a complete journal to eclecticisms such as ideas to pursue for research, or look-this-up-later lists, or annotated bibliographic notes, or newspaper clippings with journal author notes. Professional journals may be kept in notebooks or diaries, or on audiotape, or on a computer that could be linked to a network for collaboration with colleagues.

Pragmatic journals overlap with professional journals in recording medium; often it could be efficient to link with a colleague on a computer network to plan meetings or travel arrangements, and to review the products of group writing projects. At their most basic, pragmatic journals can be notes from telephone messages, answering machine messages with annotations, desk calendar notes, or, for the commuter, car dashboard notes. Pragmatic/professional journals that are important to instructors might be in depth accounts of student conferences, notes on student work, and audiotaped accounts of student conferences.

Introspective journals may take the form of diaries, specialty journals, or video or audiotaped musings. Introspective diary entries that address topics such as "Who am I?" or "What is my life about?" or "I wonder about these things" can provide the journaler an outlet for creative efforts as well as offer prose or poetry thematic series. Specialty journals may be pragmatic in topic (exercise diaries, medical journals, a child development diary, or a food/diet journal) but the writer may want to record feelings or personal reactions. Some specialty journals, such as the medical journal, could be valuable resources in diagnosing and treating illnesses for the writer or his/her family. Video and audiotaped journals that capture the journaler's thoughts or musings are not just unique in medium but offer a less structured format. Journalers may record in a more spontaneous, less self-correcting manner that they would write, making these an attractive and almost effortless solitary end-of-day activity.

While the writing opportunities provided by personal journals lead naturally to improved professional

writing, a journal can be used intentionally as a tool for professional growth. Some of the best advice about how to use journals for professional growth is provided by Holly (1989).

Ultimately, the journal purpose should dictate the format. The less complicated the task, the more likely the writer will be to participate on a daily basis.

Conclusions

What methods encourage us to start or continue journal writing for personal and professional reasons? Three considerations, i.e., personal preference, creative experimenting, and established routine, should have top priority. Personal preference should, if at all possible, determine the times, places, and materials or equipment for writing. Establishing best times, places, and tools may require creative experimentation and "tweaking." Finally, once a reliable combination is found, it is important to establish a routine. A routine frees us from endless decisions about circumstances and leaves more energy for writing and reflection.

Journal keeping, besides modeling good writing habits for our students, serves the busy developmental educator in a number of ways: it allows for self-examination, it serves as a practical reminder notepad, it may promote creativity, it may provide inexpensive therapy to the harried and potentially burned out, it furnishes an easy and convenient recordkeeping system, and it can offer an organized way to collect observational data for professional sharing. The purpose, the medium, and the frequency and regularity of entries are best left to the writer to choose.

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The Senior Lecturer Program: Rewarding Part-time/ Adjunct Faculty

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One of the issues in postsecondary education today is the regular use of part-time faculty, most of whom are not tenurable. By 1980, an estimated one third of the total of postsecondary faculty were part-timers, with community colleges employing the highest percentages and even research universities utilizing a significant number (AAUP, 1980). A National Education Association report (1988) concludes that part-time, temporary, and nontenure-track appointments are often clustered in some areas, including "remedial" programs.

Although the use of part-time faculty has several benefits, mainly the ability to do flexible staffing at minimum costs, the use of part-time faculty presents several challenges. Since these individuals often spend relatively little time on campus, communication problems with serious consequences may occur (Mortimer, Bagshaw, & Masland, 1984). Dissatisfaction with status or conditions may lead to a high turnover rate of part-time faculty, another problem area.

Programs which use part-time faculty have a responsibility to address these concerns. Gappa (1984) calls for improvements for part-time faculty in many areas. In recommending personnel policies, Biles and Tuckman (1986) recognize the necessity for the integration of part-timers into the academic community. Since good morale and program commitment contribute to the quality of services delivered, the challenge to administrators is to promote meaningful involvement of part-time faculty in program activities and to provide incentives for retention.

The division at our institution that provides developmental education for students employs a relatively large number of part-time lecturers to teach these courses. A series of incentives and rewards for developmental part-time lecturers has been devised which follows some basic guidelines.

One important guideline is that administrators must consider the individual needs and situations of part-time faculty in order to structure a satisfying environment. People engage in part-time teaching for different reasons. From a national survey, Tuckman (1978) concluded that there are seven motivational categories: "the semiretired, students, those wishing to become full-time (Hopeful Full-Timers), those with a full-time job (Full-Mooners), those with responsibilities in the home (Homeworkers), those with another part-time job (Part-Mooners), and all others (Part-Unknowners)" (p. 307).

Part-time faculty also possess a variety of characteristics which may influence their needs. The majority of the part-time lecturers who teach the developmental courses at our institution are women. Most of the lecturers hold a master's degree and have considerable teaching experience. While some would prefer full-time teaching, many have other full-time or part-time employment or interests. Since people teach on a part-time basis for several reasons and have varying characteristics, a reward system should have several elements which respond to a variety of needs. What is an important satisfier for some may be meaningless to others.

Another guideline is to listen to the concerns articulated by the people affected. In a recent survey of part-time lecturers, the issue of salary was found to have the highest priority (Thompson, 1989). Other concerns voiced by lecturers (Open Meeting, 1991) are the lack of administrative supports such as office space, the absence of fringe benefits (particularly health insurance), insufficient opportunities for professional development, and a general feeling that the work of lecturers is undervalued. All of these issues may be directly or indirectly addressed by administrators who are responsible for the employment of part-time faculty.

A final guideline which has been effective is to adopt a threefold approach in attempting to improve the situation. The first step is to identify and inform part-time faculty about any existing benefits. Even small privileges serve to instill and reinforce a feeling of inclusion in the university community.

After determining what benefits are already available, the second step is to initiate any improvements in conditions or benefits that are possible to institute at the unit level. For example, the developmental division has made it a priority to provide instructional support for lecturers. Each lecturer is assigned at least a desk or carrel and has access to a photocopier, typewriter, word processor, and telephone. Such provisions seem basic, but anecdotal evidence about inadequate facilities speaks to the necessity for definite action. Indeed, the lack of such support creates the impression that part-time faculty are not recognized in very fundamental ways. A small fund has also been designated for professional development activities for lecturers, such as travel to conferences.

On a third front, the unit can be an advocate for other kinds of benefits that require approval from higher administration. One initiative of this type is the Senior Lecturer Program for teachers of developmental courses. The program has been renewed annually for four years and was one of the models considered in a university-wide review.

The Senior Lecturer Program recognizes the experience and leadership of part-time lecturers. Once a developmental lecturer has taught for three years, he/

she may apply for senior lecturer status. The application process involves submitting documentation in three areas: teaching experience, program contributions, and professional development. Lecturers present evidence of creative teaching techniques, variety of experience, and concern for students. Program contributions may include mentoring new teachers, serving on a committee, staffing the tutoring services, or taking part in any number of paid and unpaid curricular or outreach projects. Professional development activities range from publications to conference or workshop attendance.

Once approved for senior lecturer status, individuals have the following benefits, which are structured to address some of the expressed needs of lecturers: (1) guaranteed number of sections (2) increased rate of compensation (3) preference for travel support and tuition reimbursement (4) eligibility for an administrative role as program assistant.

In conclusion, the use of part-time faculty seems to be firmly entrenched in postsecondary education. While an ideal situation would include creating more regular full-time faculty appointments, budgetary constraints make this scenario unlikely. Administrators, then, must recognize the services provided by part-time faculty and take whatever steps are possible to ensure equitable treatment and promote the integration and involvement of this important group. The Senior Lecturer Program illustrates one such step.

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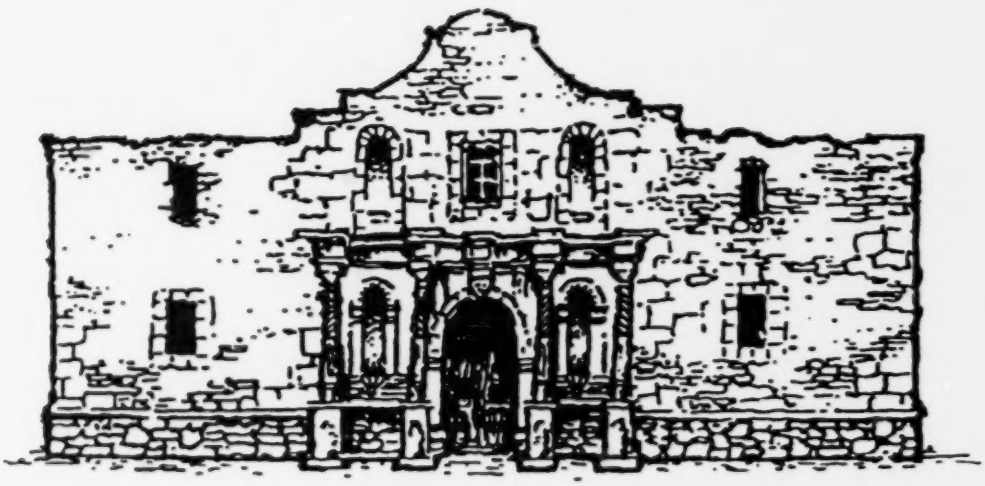

Writing, Reading and Mathematics

What they say and what they do: Revision strategies of adult developmental writers

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Writers, dramatists and others who want to convey a message powerfully often use the voice of one or two individuals. These individuals tell their story, and the audience listens and hears the message with a clarity and intensity not possible through other methods.

Ethnography is a form of qualitative research which uses peoples' voices as a primary source. The word combines "ethos" meaning type or kind with "graph" meaning picture, and the technique is to use a variety of sources, but particularly interviews, with individuals to create a picture of a kind or type. It is becoming an important means of qualitative research.

In contrast, quantitative research seeks the mean or as representative as possible number of responses, and individual voices only pollute the data's value. But, when the two techniques are combined, research gets a bonus. The research produces both the qualitative (what the students "say") and the quantitative (what the students "do") results, but also the discrepancy between the two provides a third source of data. For developmental students, this discrepancy often reveals the heart of what is inhibiting their learning.

Developmental students may believe and thus may say things about their academic potential, but what they do may not agree. We must determine if those beliefs merit serious attention, regardless if the beliefs match actual performance or not.

In an examination of six developmental writing students' revisions choices, such discrepancies revealed important data about the students. I used Faigley and Witte's (1981) taxonomy to measure revisions strategies on three writing samples. I also interviewed these students at the same times and used Hycner's (1985) protocols to analyze the interviews. The sample students were identified as 2 high, 2 medium, and 2 low writing apprehensive students (on the Daly-Miller Writing Apprehension instrument). The research was conducted spring semester of 1991.

Results and Discussion

Quantitative Revision Changes

The general pattern was to make more surface changes — primarily meaning-preserving changes — than text-based changes over the semester. Spelling and punctuation changes and additions to the text were the most favored revision choices.

Qualitative Revision Changes

The higher the apprehension, the less the student was able to employ higher-level revision strategies. But, by the final interviews, all students were discussing higher-level revision strategies at least a little. Further, in the final interviews, the students were able to be much more explicit about their writing experiences than initially, and they also expressed greater enthusiasm for their writing.

Also, the higher the apprehension the less likely the student is to see revision as recursive, and the lower the apprehension the more often the student mentions audience, desires writing to convey meaning, and sees opportunities for adding to content.

No matter what the apprehension level, all the students were quite concerned with error correction and saw no value in a second revision of their writing. This error correction obsession is consistent with other researchers' findings.

Finally, high apprehensive students seemed to put as much distance as possible between them and their writing, never using the first person pronoun, never demonstrating any grasp of strategy and control, and always mentioning lack of confidence.

In contrast, the low apprehensive students say revision as an opportunity to improve their writing, as natural and enjoyable and say writing as a part of their lives. They used casual language when discussing their revisions, "I just" and "Oh, well. . ."

Implications

Sometimes what the students did was consistent with what they said. For example, meaning-preserving changes was the most popular choice and is not surprising in light of their frequent statements about wanting to find the right word to say something. It is expectable that they altered their words and phrases attempting to make them convey their ideas. On the other hand, rarely did they say they looked for more ideas for support or for contradictions, which would be entirely different quantitative changes.

But sometimes there was a discrepancy. Once was that the reduction in formal changes could indicate that the students have broken free of the conviction that error-free writing is good writing. But the interviews tell us differently; the students absolutely do want to correct all their errors. Why do they not do so, then? Perhaps because even though they know they make errors, they as yet lack the knowledge to recognize or to correct them. Perhaps there are fewer corrections because there are fewer errors, but the students are unaware of their own improvement.

This discrepancy tells us that obsession with error corrections has not disappeared just because the error correction has not taken place. This difference is important to us as developmental educators. We cannot rely

solely on student performance or solely on student testimony. We need both to tell us when we need to examine further the sources of students difficulties alert students to their own improvement. I have used both methods to discover how my students review and what they think about their revisions. I use the discrepancy between to tell me what may be the real heart of their writing problems. Also, the cool and unquestionable reliability of the qualitative data reassures me that what I intuit is verifiable.

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Improving the Audience Awareness of Developmental Writers

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Since Aristotle, theorists on writing have pointed out that one of the most important attributes of a good writer is awareness of one's readers. When writers define their unseen audience and try to understand and please or convince this audience, their texts usually communicate more effectively. It has often been noted that developmental writers tend more than skilled writers to lack audience awareness. Andrea Lunsford (1980), for example, read closely a "random sample" of 500 essays written for the British Columbia Placement Test and found that the content of the "low or basic" essays, whatever the topic, centered on personal experiences and grievances and fears, while the "skilled" writers dealt more with ideas and took examples from literature and politics as well as personal experience. Lunsford's conclusion: "Basic writers merge with the topic; they cannot distance themselves in order to gain a variety of perspectives on that topic... They seem to represent the egocentric stage of cognitive development" (281-84).

I do not claim that all basic writers are egocentric or that all the problems of basic writers' work stem from lack of audience awareness. However, audience awareness is an important strand in the closely woven cognitive—and emotional—web of abilities with which we must deal as we teach writing. It might help us, as teachers, to analyze audience awareness in terms of four interrelated subskills: basic execution, content, perspective-taking, and role-taking (adapted from Rubin, 1984). These subskills can be pictured as stair steps, each "higher" one including the one below. Problems with the first two—basic execution and content—can result mainly in confusing the reader; problems with the second two, perspective-taking and roleplaying, can result in alienating the reader.

By audience-aware execution, Rubin meant that the writer relates specific writing techniques to the audience. These techniques include, of course, those basics we work with all the time—correct sentences, clear organization, and appropriate diction; and certainly such weaknesses most often arise from "inexperience." However, even basic grammar and execution can improve if the writer imagines how the audience will experience the sentence. For example, in the statement, "As I walked in the silence told me everything was taboo," the writer needs to realize that because there is no comma after "in," readers will probably read, "As I walked in the silence," and get confused.

Content can also be approached from the audience awareness angle. Writers may omit needed information, like facts or definitions of terms, because they do not think of any outside reader at all—or if they do, they assume, like Walt Whitman, that "what I know, you know." Thus a student describing her running of a 200-meter race comments that the pain in her leg "came back *again*" (emphasis mine) when she had not mentioned having any pain earlier.

Perspective-taking problems occur when the students express no understanding or respect for ideas and views different from their own. Their rigidity can be seen in sweeping, overly dogmatic statements: "The ideas of both authors are wrong because neither of them agrees with me unequivocally." The effect of poor perspective-taking skills in writing—and in life—is usually to alienate others, not convince them.

Audience alienation can also result from writers' lack of *role-taking* skills, which involve the ability to predict a reader's emotional and intellectual responses and shape content, imagery, and vocabulary accordingly. A lack of these skills is shown when a student condemning illegal drug use states without qualification that he would like to give addicts "all the drugs they want in hopes of an overdose." He does not understand that this extreme approach (not used with Swiftian irony) would probably alienate even readers who are opposed to drug use, and so undermine his argument.

While such audience awareness problems in developmental writers are often a result of underdeveloped social cognition, the same problems can arise from motivational factors. Concern with audience will decrease when a student does not have a desire to please the teacher or peers, get good grades, or reach a career goal (McLeod, 1987, p. 429)—or has little hope of ever doing so.

To deal with motivational factors, teachers might try the "positive" approach. Teachers need to establish themselves as a warm, sympathetic, interested—not overly critical—audience. They should respond to students' content with interest, note only the major errors to begin with so students won't be overwhelmed, and comment on positive aspects of their writing. Teachers might also express appreciation of talents these students have outside of the writing class—for example, as musicians, artists, athletes—and try to nurture a mutual respect among the students in the classroom. Students who demonstrate symptoms of learning disabilities should be encouraged to get a psychoeducational evaluation (McAlexander & Gregg, 1989) so that modifications can be made for them, such as allowing extended writing time and the use of word processors.

While these techniques can improve students' motivational outlook (and hence increase their concern with audience), a number of pedagogical methods can improve social cognitive skills themselves. Perhaps most important is letting a student see readers reacting to papers—through teacher-student conferences, class discussions, and peer reviews. Activities and assign-

ments that raise audience awareness include 1) assigning an "audience questionnaire" to go along with essay assignments (Pfister & Petrick, 1980, p. 215); 2) giving writing assignments directed to specific audiences; 3) asking students to analyze the audience that assigned readings were written for; 4) assigning an essay describing how a popular magazine is designed to appeal to a particular audience (Pfister & Petrick, 1989, p. 217-18); and 5) organizing activities that involve role-switching, peerquestioning, topic sculpting, and debates (Rubin and Dodd, 1987).

If students are able to define their audience and are motivated to communicate with that audience, if they realize that their readers' perspective may be different from their own, and if they can imagine (take the role of) their readers, they will be much more successful as writers.

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Designing Portfolios for A Basic Writing Class

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While writing portfolios are enjoying increased popularity with administrators as an assessment tool, they have become a valuable teaching resource, especially in the basic writing class, because they provide concrete evidence of the student's growth as a writer over a period of time. Writing portfolios can be used as an exit competency measure, but in the developmental classroom, they can document student progress, even if that progress does not meet the exit competency requirement. Collecting a student's writing over a period of time also gives the teacher diagnostic material for determining the patterns of achievement and error so goal setting on the individual and class level can be more focused and realistic.

Having each student collect his or her own writing into a portfolio, which can take the physical form of a folder or computer disc, provides a more complete picture of that student's writing ability than any single assignment or test can. Additionally, having students organize and maintain their portfolios following defined guidelines teaches them responsibility and management skills. Students must understand that their portfolios should always be ready for review so the teacher can track students' progress and persistence in finishing assignments. They should have available the complete body of writing that leads to the final draft rather than just the final product of the writing.

Typically the writing portfolio would contain the assignment sheet, brainstorming exercises, essay plan/outline, and first through final drafts. While this practice is already followed in many classrooms, the portfolio takes it a step further by requiring students to keep all of their writing for multiple assignments over a period of time. Students may also be asked to add to the portfolio ungraded work such as journal writing or any pre-writing they do for assignments, along with revision of their works-in-progress. They must take responsibility to select and edit writing samples on their own initiative and not just upon the teacher's request. Thus the teacher has resources for measuring the student's willingness to learn.

To facilitate tracking students' work, all assignments should be numbered and dated so both teacher and student can determine the order in which the writing was done and thus measure the evolution of the student's writing abilities. For some learning disabled students, it may helpful to color code assignments so they will know which papers go with which assignments. It is also helpful to periodically give students a table of contents that lists everything that they should have in their portfolios. It wasn't until I gave students class time to organize their portfolios that I understood how many students had problems with writing because they could never hold on to their pre-writing notes in an organized way long enough to produce a finished draft. To reinforce the importance of pre-writing as a foundation for good writing, if a student is missing any portion of the pre-writing or preliminary drafts, he or she should be required to recreate that work in order for the portfolio to be considered complete. So, even though these stages of writing are not directly graded, students come to understand that prewriting has value in helping them arrive at the finished product.

It wasn't a shock to me that some of my basic writers had more of a problem with the housekeeping than with the critical thinking it takes to produce good writing. For these students the writing portfolio taught them to be better organized and more responsible for all stages of writing rather than just the final draft. Their portfolios were to be current with the syllabus; that included both graded and ungraded stages of the writing process. The importance of this was reinforced when I would ask students to pull out their portfolios and use their pre-writing to complete, in class, an essay that wasn't due in final draft form for a few more days. To motivate students to keep current with the ungraded pre-writing or journal assignment, the teacher could also check the portfolio for completeness every few weeks. This need not be time consuming if a check grading system is used instead of a letter grade. Besides teaching and reinforcing organization and pre-writing skills, portfolios demonstrate to students that writing is evolutionary. The portfolios provided concrete evidence of the stages that were missing, weak, or misdirected.

Having students include all of their pre-writing gives the teacher a window on the students' writing process, especially the willingness of the students to write multiple drafts. By reviewing all stages of the writing, I could determine where writing problems were beginning. Was a student revising or simply recopying drafts? Were students able to generate enough ideas to develop a quality essay and were they able to identify and develop the best ideas? Additionally, this window into the process provided a vehicle to help reduce plagiarism.

All this paper shuffling may sound like more work for the teacher, but it wasn't because I was selective in which stage of the process I would be collecting or reviewing and whether an assignment was worth a letter or check grade. Giving a check for satisfactory work, a minus for unsatisfactory work, and a plus for excellent work satisfied the students' need for teacher feedback and my need to keep the paper load manageable.

The writing portfolio thus produced a variety of resources for assessment, but it was particularly valuable in motivating basic writers to set goals and work toward writing improvement. I was not surprised to discover that there were patterns to their strength and

weaknesses as a writer because the portfolio provided me with previous essays and pre-writing exercises to test and prove my diagnosis. More importantly, the portfolios gave me concrete evidence to convict students of their patterns of errors and convince them of their progress toward writing excellence.

With all the students I have, I can't always keep a clear mental inventory of each student's writing style. The portfolio provided me with prompts from my own grading on past assignments. I noted patterns. For example, if a student had persistent problems with commas or paragraph development, I would target those areas for improvement. Likewise, if the student corrected an error he or she had persistently made in earlier essays, I would applaud the learning that had taken place.

To illustrate, one of my students was discouraged because she had so many corrections on her papers. When I looked at the body of her work over the span of several essay, it was obvious that she was repeating the same three mistakes. I spread her essays across my desk and showed her the evidence presented in her writing. She came to understand that by investing time in learning to correct these three errors, she could eliminate most of the "red marks" that she saw as evidence of her inability. Without the writing portfolio, I would not have had the resources for early diagnosis of the patterns of error nor the evidence to convince her to make the change in her writing. Plus, many students will not dedicate themselves to investing effort to correct an error if they feel it is an isolated one. Likewise, other students perceive each correction as a separate error and are therefore overwhelmed by the enormity of their problem: Using the portfolio, I could convince them that they were closer to correctness than they may have at first believed. They just needed the physical evidence to convict and motivate them.

A final exercise in the portfolio can be to ask students to edit out the papers and determine which essays or journals demonstrate their best or most representative writing. They need to learn what is valuable in their pre-writing and what is not and this portfolio "housekeeping" allows them to practice this vital skill. This exercise also prepares the portfolio to be carried forward to be used in the student's next composition class or any class that requires writing. Teachers who keep files of their previous lessons plans, writing assignments, and tests already recognize the value of this type of portfolio building and editing. We should teach this skill to our students as well.

When our students learn that all writing should relate to and build on previous writing, they will understand the value of a well maintained writing portfolio and its impact as a resource for their future writing. The writing portfolio plants that concept in student's minds.

Assessment as Learning in Developmental Writing Classes

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The attention that was given to assessment in the 1980's has continued into the l990's with demands for assessment coming from within institutions of higher education and from external agencies and populations. Not all educators view this call for accountability in a positive light. However, rather than viewing assessment in a negative and threatening sense, other educators have come to realize that the information and feedback derived from assessment can be used to enhance students' educational experiences. They believe that assessment, regardless of the form it takes, can be used positively to improve programs and instruction and assist students in becoming self-assessors and life-long learners. Assessment which focuses on the improvement of individual student learning is especially well suited for use in developmental writing courses, such as the one I teach.

The first step to making assessment as learning an important part of a developmental writing course is to examine the course as it currently is being taught. Even if a composition staff meets regularly to assess and restructure the writing course, concentrating on using assessment to increase student learning will result in a tighter focus and more direction to the discussions. Several of the issues which arose during our initial discussions have continued to be important in subsequent discussions and pose questions that all of us who teach developmental writing should address. What do we expect our students to be able to do as a result of having taken our course? What do we expect our students to be able to do as a result of each assignment that we give them? Do the goals for each assignment help the students accomplish the objectives of the course? What knowledge do the students need to acquire and what skills do they need to develop in order to reach the intended outcomes? How can we instruct our students in order to help them acquire the necessary knowledge and develop the needed skills? How can we effectively use feedback to help the students become better writers?

These questions fall primarily into three areas: establishing intended outcomes for both the course and for the components of the course; determining the knowledge and skills needed by the students in order to reach the outcomes; and designing instruction, of which feedback is an essential part, that will assist the students in reaching the goals. Designing and effectively using valid assessment instruments that help both teachers and students determine if intended outcomes have been reached also are important topics for discussion.

Establishing intended student outcomes is a indispensable and ongoing part of the assessment-as-learning approach. Our original outcome statement first was expanded to four outcomes, which now, as a result of further discussions, are nine in number. Then each assignment must be examined in order to determine if and how each one helps students achieve the course goals. Why are we asking our students to do this assignment? What are its specific goals? By achieving these goals are the students being helped to accomplish the course objectives? We must be dedicated to making sure that each task we ask our students to do contributes to their reaching the goals that have been set. For example, we must be able to justify asking the students to do an editing exercise or asking them to use conjunctive adverbs when combining sentences. Since the students are the ones who are being asked to achieve the goals, they certainly need to be made aware of them. Furthermore, they should understand how each assignment is helping them achieve the goals. The students also can be involved in goal setting as they can be asked to set individual goals at the beginning of and throughout the semester.

Determining what knowledge our developmental writers need to possess and what skills they need to develop in order to reach the intended outcomes is extremely important. Do our developmental writers need to know what a gerund is? Why? Do our students need to understand the concept of the predicate nominative? What goal or goals is this knowledge helping them achieve? Which mechanical and grammatical problems should be discussed with the entire class and which ones should be dealt with on an individualized basis? Although we as English teachers might find the study of grammar fascinating, to what extent do our students need to study it? The time we have with these developmental writers is brief; therefore, that time must be well spent. Focusing our attention on determining what is important will help us dig through the mountains of information that we could present to our students in order to discover what we should present to them.

Course design and instructional methods need close examination. Does the course structure help the students meet the stated goals? Are course documents effectively organized? Will the students benefit from writing an advantages/disadvantages essay before they write an essay that involves a definition? Should a contrast paragraph come before a classification paragraph? Feedback must be an important component of the instruction in the course because in order to become better writers these students need to write, have qualified people respond to their writing, and then have the opportunity to revise. Using the writing-as-a-process approach and having computer availability for students will aid teachers in requiring revision of papers, tests,

and quizzes. Because effective learning results from revising based on feedback, the initial works of the students can be a part of, but should not necessarily constitute all of, the final grade. Having students keep portfolios of their work can contribute to individualizing instruction as can tutorial sessions.

A belief in the importance of assessment as learning will result in a commitment to develop and use assessment instruments designed to increase student learning. After tests are given, they can be discussed and kept by the students for future study. The students, assisted by their teachers, can use their writing portfolios to assess themselves as writers and to establish individual goals. One of my colleagues has decided to assign a contrast paragraph in which the students contrast when they determine to be their strongest paper with their weakest. Another has suggested having the students write a paper in which they use specific examples to assess themselves as writers at the beginning of the course and at the end of the course and plot their growth. Supplemental assessment-instruction instruments, accompanied by answer keys and explanations and including computer-assisted instruction, can be developed. Assessment/question sheets to accompany writing assignments can be utilized. These sheets then can be used by the students as they write their papers and by the teachers as they react to the students' papers. Other assessments that can be used include peer and class evaluations of papers. Recently, our composition staff has received a grant to develop a common writing assignment with an accompanying scoring guide. Using the scoring guide, pairs of composition teachers will evaluate the papers resulting from the common assignment. The scoring guide also will be given to the students prior to their writing the assignment and will be used to provide feedback to them after the papers have been evaluated. This feedback will assist the students in setting goals for themselves.

Using assessment to focus on increasing individual student learning can have very positive results: both courses and instruction can be improved, and, most importantly, student learning can be increased. Using assessment as learning to direct the analysis of a course can assist teachers in discovering, appreciating, and building on existing strengths. As a result, a good course can become even better, and continued improvement will be encouraged. Because of their increased involvement in the learning process, the students who study in an assessment-as-learning environment will be better equipped to continue to assess and improve their own writing. Should developmental composition teachers fear assessment? No, they should value assessment because they can use it to help their students become better writers.

Beyond the "SP" Label: Improving the Spelling of Developmental Writers

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Spelling errors are appearing more frequently in college students' papers in recent years (Connors and Lunsford, 1988), and for many developmental writing students, the problem is particularly severe. These poor spellers tend to fall into three categories: 1) disadvantaged students—those who have had limited practice in reading and writing 2) uninterested students—those who have had the opportunity to read and write, but who have paid little attention to written texts and 3) learning disabled students—those who have a cognitive or perceptual processing dysfunction that affects spelling.

The spelling of these college-aged students can be improved. A vital preliminary step is to analyze which spelling "routes" they are not using effectively. There are two major spelling routes—the auditory and the visual. Writers use the auditory route when they sound out a target word, the visual when they see a mental picture of the target word or jot down probabilities and recognize the correct spelling. These major routes are supplemented by other routes: 1) *spelling rules*, which enable spellers to recognize recurrent English spelling patterns 2) *semantics*, which relate meaning to spelling 3) *morphology*, knowledge of how to use prefixes and suffixes 4) *analogy*, used when writers base the spelling of a target word on a known word with a similar sound, and 5) *motor reflexes*, which help a writer produce the letters of familiar words almost automatically.

Misspellings can be categorized according to which of the major routes the reader has overrelied on (thus producing the error) or which supplemental route(s) the writer has misapplied or not applied when it was relevant. Thus we have *auditory errors* occurring when the writer stresses phonetics and neglects the visual route (possobly for possibly), *visual errors* that neglect sound as the writer attempts to produce a word's appearance (hosiptal for hospital), *spelling rule errors*, which neglect English spelling patterns (likeing for liking); *semantic errors* (these may be auditory errors based on dialect), which omit prefixes or suffixes (can goods for canned goods); *analogy errors*, which occur when the writer uses the wrong model for a word (alright based on already), and *motor errors*, which, like typos, occur when fingers automatically produce the wrong letters (alunimum for aluminum, the for their).

Rather than simply writing "sp" over misspellings, teachers can classify the errors to discover error patterns that suggest the route(s) the students need further training in using. A number of spelling texts provide good lessons on homonyms, prefixes and suffixes, and spelling rules (Brown & Pearsall, Hook, 1985), and there are a number of exercises which can increase auditory and visual skills (Dobie & Anderson, 1986). The use of a word processor's spell checker also furthers these skills.

Teachers should also be aware that frequent and bizarre spelling errors suggest the presence of a learning disability. Students so diagnosed are usually eligible for modifications when writing, such as the use of a word processor and extended time.

Overall, spelling is an important skill, and a student's errors deserve more attention than a mere "sp" label.

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The Whole Enchilada: Integrating Content Instruction into a Whole Language Program

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What makes learning language difficult? According to Hobson and Shuman (1990) learning becomes burdensome when instruction empowers someone other than the learner and is artificial, splintered, uninteresting, out of context, and inaccessible with no discernible purpose or social value. Learning, then, becomes easier when instruction is relevant, purposeful, meaningful, respectful, and powerful (Hobson and Shuman, 1990). Both content area and whole language instruction enable developmental reading teachers to maximize instruction and make learning more tractable. Scores of reading professionals profess either content (Dishner, Bean, Readence, and Moore, 1986; Herber, 1978) or whole language (Goodman, 1986; Newman, 1985) as the one best way to instruct developmental students. Rather than simply emphasizing one to the detriment of the other, a program which uses whole language to complement and expand content instruction is mandated. This approach can be accomplished easily by adding a whole language lab to a content area reading class.

Content Area Reading Class

Content area instruction needs to focus on the reading strategies necessary for academic success and provide practice with chapters from collegiate texts. One way to accomplish this two-fold technique involves dividing your semester into two parts.

The first part, approximately four weeks in duration, encompasses direct instruction of reading strategies (surveying; locating, summarizing, and making connections among main ideas and details; identifying meanings in context; and applying critical thinking techniques to reading and notetaking).

The second part involves intensive practice of these strategies on chapters from a variety of content area texts. Reading class becomes history class, biology class, or psychology class. Students read text chapters and take notes, outline, map, chart and/or diagram information from these chapters. Reading examinations become relevant because they test the actual content and vocabulary of a college course.

One thread running through both parts of classroom instruction is general vocabulary instruction in context. Students read magazine articles relevant to the topic under discussion in class—whether that be a reading strategy or a content area—define words in context, create word cards with mnemonigraphs, and take comprehensive weekly exams.

Whole Language Reading Lab

Recreational reading (non-fiction, fiction, and periodicals) is the vehicle through which holistic instruction takes place in a whole language reading lab. Students contract to read seven books of their choice (at least 200 pages) during the semester. They give oral, one-on-one, book reports to the lab instructor, usually a graduate assistant in English or reading education. The instructor attempts to assess comprehension and recall through various questioning techniques. While these book reports are an integral part of the lab, they are outside reading assignments.

During lab hours, in addition to hearing book reports, the lab instructor uses individual and group instruction to encourage oral and written communication about reading. Activities include Read-a-Book-in-an-Hour, PORPE (Simpson, 1986), written comparison of opposing opinions in editorials, sustained silent reading, written contrast of silent movies with contemporary movies and so forth.

Summary

It is time for developmental reading educators to realize that there is no one best way to teach reading to the exclusion of all others. The best approach is one which allows for the diversity of developmental students and their learning styles. Combining classroom content instruction with a whole language lab provides equal opportunity for both.

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Cooperative Learning in the Developmental Studies Math Classroom

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According to mathematician, Julian Weissglass, "learning consists of evaluating new information in relation to information that's already understood and storing it in a from that's available for use in new situations" (Weissglass, 1976, p. 16). This definition implies that rote memorization may not be learning or at least not effective learning. If a student cannot use the information learned in one course in a subsequent course, has that student really learned? Information that is really learned should be available for use later.

History

Cooperative learning or the concept of can be traced to biblical times. "Two can accomplish more than twice as much as one, for the results can be much better. If one falls, the other pulls him up; but if a man falls when he is alone, he's in trouble." Ecclesiastes 4: 9-10. In the late 1700's Joseph Lancaster and Andrew Bell used the cooperative learning concept in England and this idea was introduced in America with the opening of a Lancastian school in New York City in 1806. Strong emphasis was placed on cooperative learning all over the United States in the early 1800's. Colonel Francis Parker, superintendent of public schools in Quincy, Massachusetts, 1875-1880, was an advocate of cooperative learning. Noted educator, John Dewey, followed Parker in promoting the use of cooperative learning as part of his famous instructional methods.

In the 1940's Morton Deutsch, a professor at Columbia University's Teachers College, combined a theory of cooperative and competitive situations that has served as a foundation for later research. David W. Johnson, a noted researcher and advocate of cooperative learning and a doctoral student of Deutsch, has extended the theoretical structures developed by Deutsch, to the application in the classroom. While varied forms of cooperative learning have been used in schools throughout much of this century, it was not until the early 1970's that much research on specific forms and applications of cooperative learning began to emerge.

What is Cooperative Learning?

One of the most important human activities is cooperation. Today, one means of success is dependent on people who can organize as a group to accomplish a common goal. Cooperative learning, when applied to instructional methods means that students of all performance levels work together in small structured groups toward a common goal (Slavin, 1987). One method of achieving the conducive environment for learning in the developmental studies math classroom is the use of cooperative learning in small groups in addition to the lecture method.

Cooperative learning has been defined as "a set of instructional methods in which students work in small, mixed ability learning teams. The students in each group are responsible not only for learning the material being taught in class, but also for helping their teammates learn" (Farnish, 1989). The emphasis here should be on helping each other learn while each individual is learning. Learning in groups is totally different from an individual student learning independently in a lecture classroom. In the learning-team approach there is nothing rigid. Cooperative learning helps students realize that mathematics does not have to be learned in isolation and therefore, it helps all students succeed in math (Lawrence Hall of Science, 1989).

The key element to cooperation is definitely "we instead of me" (Johnson, Johnson, & Holubec, 1988, p. 46). An essential feature of cooperative learning is that the success of one student helps other students to be successful (Slavin, 1987).

Student Responsibility

A statement that is very familiar to those of us in the profession of teaching mathematics is, "the only way you learn mathematics is by doing it" (Weissglass, 1976, p. 15). The first responsibility students have is to make sure that they do work each assigned problem. The second responsibility of students is that they understand the problem and work together to find and evaluate the solution. Opportunities for discussion should be provided. This will help clarify, define and set up the group task. Thinking skills will be promoted during this procedure.

The main difficulty in using a small group approach is that students must accept responsibility for their own learning. It will take the older students longer to adjust to the small group method since they grew up accustomed to passively listening to lectures (Davidson, 1990).

After the groups have finished their task, they should be able to summarize their findings (Adams & Hamm, 1990). This should reinforce the learning that has just occurred and fulfill their third responsibility.

Role of the Teacher

Some teachers may have to change their perspective of learning and teaching. An ineffective method of teaching is the approach to tell students, "This is essential knowledge: learn it" (Gough, 1987, p. 661). William Glasser (Gough, 1987) sees the teacher's job as a facilitator rather than motivator. If a teacher teaches in a way that makes students want to learn, they will learn and do well.

One of the most talked about problems in education today is the motivation of students. In order to be a successful teacher of mathematics, students must want to learn mathematics. It is Glasser's belief that "teachers can't make students learn, but they can certainly set

things up so that students want to learn" (Gough, 1987, p. 660). In this respect Glasser (Gough, 1987) sees the teacher acting as a consultant and a facilitator. This can be accomplished by teaching traditionally, that is, lecturing part of the time and the rest of the time forming cooperative learning groups with the teacher moving from group to group to promote leadership, support and encouragement to each group and each student within the group.

While students work cooperatively to solve a problem, the teacher should observe, listen to the group's ideas and offer assistance as needed. If a group is having difficulties, the teacher should help them discover what they know so far by posing a simple example or by pointing out any misconception or erroneous idea.

Strengths and Benefits

Teachers will find one strength of cooperative learning is that students work harder in groups or teams. After a while a teacher will not be able to tell which team member was formerly the poor student and which was the good student. Other strengths of the group sessions include active as opposed to passive learning as well as the enhanced opportunity for mathematical thinking.

Cooperative learning addresses the problem of the learning of math as being an isolated individual matter, lonely and frustrating, which creates a fear of math and hence, math avoidance or math anxiety. Research indicated that cooperative learning is like a rich gold mine. Learning in cooperative groups is really a way of exploiting untapped potential. If well planned cooperative learning is used systematically and on a regular basis, it can have a very positive impact on the classroom climate. Positive effects in the classroom include better student self confidence and self esteem. The classroom then becomes a community of active learners working together to enhance each other's mathematical knowledge (Davidson, 1990).

"Cooperative learning seems to be an extraordinary success" (Slavin, 1989/1990, p. 3). In addition to an excellent research base, it has thousands of supporters. Few researchers agree on the method and conditions necessary for success, but most agree that cooperative learning can and usually produces positive achievement results.

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Assessment and Placement for Developmental Mathematics: A Collaborative Effort

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Many students do not have the skills to be successful in the first college credit courses in mathematics. A national survey conducted by Leterman, Ryzewic, and Ribundo in 1983 found that 32% of students entering colleges and universities needed help with mathematics. A survey conducted by the Southern Regional Education Board in 1991 (Abraham) indicated that 38% of first-time students needed assistance in mathematics.

At this institution, students placed in the Developmental Studies (DS) program are those who do not meet minimum criteria for regular admission. It is evident, however, that other enrolled students also may be underprepared for core courses. Data from Summer 1990 through Winter 1991 indicated that over 25% of the students who enrolled in the beginning core mathematics course failed the course and less than 50% earned a grade of C or better. The university plans to change its DS program to a more comprehensive Academic Assistance Program (ACAP), which would provide courses for any university student who could benefit from academic assistance.

A committee of faculty from the mathematics department and the Division of Developmental Studies collaborated to develop assessment and placement procedures. They examined the relationship of seventeen variables and the final grade in the beginning core mathematics course to determine the best predictor(s) of success in the course. These variables were verbal, math, and total SAT scores, scores on a Placement Test designed by the mathematics department, predicted and actual grade point average at the institution, numbers of hours at the institution and-number of college hours earned here and elsewhere, level of math course taken in 9th, 10th, 11th, and 12th grades and grade in these courses, and the score on the first computer test in the core course. All tests in the core course are computer tests, and in most cases the final grade is a combination of the grades on these tests and the final exam, which is also a computer test.

The research conducted by a member of the mathematics department revealed that the SATV score, the Placement Test score and the grade earned in the eleventh year high school mathematics course were the best predictors of success, a grade of C or better, in the core course. Analysis of the data indicated that only 30% of those students scoring below 450 on the Verbal SAT (SATV) were successful in the first credit course (Azoff, 1990). Because high school mathematics grades are not readily available, the committee recommended that initial placement be based on the SATV and the Math Placement Test scores and that the following equation be used:

$$\text{placement test score} + \frac{\text{SATV}}{10}$$

If the reorganization of the DS program as proposed by the institution is approved, all incoming freshmen, except those with advanced placement, will take the Mathematics Placement Test. These test results and the students' SATV score will be put into the placement equation, which will determine the students' placement in a core course or a course in the ACAP program. Students scoring less than 54 will be placed in the ACAP program and will take an algebra test to determine placement in a one or two-quarter course. Once placed in an ACAP course, students can be moved to a different level within the program if the placement appears to be in error. To exit the program and to be eligible for the first credit course, the student must make a C in the one-quarter course or a C in the second quarter of the two-quarter sequence ACAP course.

In addition to those students who are identified by test scores as needing an ACAP course, the performance of other students in the Math 102 course may indicate a need for an ACAP mathematics course. It is proposed that those students who are taking the core course and who do not do well, score less than 8 out of 11, on the first computer test be given the option after taking the first test to drop the course and enroll in an ACAP course. The committee studying the reorganization of the DS program recommended that another group of students, those who make a F, WF, or W in the core course, discuss their performance with their mathematics instructor to determine if the student should take an ACAP course rather than simply repeating the core course.

In the ACAP program where classes are limited to 25 students, there will be more flexibility in the design of the course. Instructors can address the method of delivery and the affective domain of high and low risk students, whereas those who teach large classes of 100 students—the size of core mathematics courses—cannot provide the necessary intervention to support high-risk students. According to Jones and Watson (1990) these interventions should include varying instructional approaches, matching teaching objectives with style and content, monitoring students' progress through quizzes and assignments, and providing individualized instruction.

In addition to classroom delivery methods, according to Strowbridge (1987), the challenge in teaching math to students of developmental mathematics is to

build strong positive attitudes to eradicate or modify negative attitudes towards math. Instructors help build these positive attitudes when, in addition to teaching mathematical skills, they can spend time in the classroom and with individual students discussing what the students like or dislike about studying math, the usefulness of math, how they learn math, and their past good and bad experiences trying to learn math as revealed in their mathematics autobiographies and other journal writings.

Instructors can interact with students by responding to assigned writings that relate to the study of mathematics. They can seek to help students change the negative attitudes they express as they write mathematical autobiographies and keep journals where they discuss questions relating to both the affective and cognitive domains.

Both Roueche (1984) and Boylan (1985) emphasize the importance of instructors committed to teaching developmental students. ACAP will be staffed by instructors who only teach developmental students. For this reason those students classified as needing developmental mathematics can be better served in ACAP than in regular classrooms where some instructor may not be attuned to the particular needs of these students.

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